

IBM RT Advanced Interactive Executive Operating System Version 2.2

# AIX Operating System Commands Reference Volume 2

Programming Family

IBM

SC23-2081-1



# AIX Operating System Commands Reference

## Volume 2

Programming Family



---

## Second Edition (September 1988)

Portions of the code and documentation described in this book were developed at the Electrical Engineering and Computer Sciences Department at the Berkeley Campus of the University of California under the auspices of the Regents of the University of California.

The Rand MH Message Handling System was developed by the Rand Corporation and the University of California.

The Network File System was developed by Sun Microsystems, Inc.

This edition applies to Version 2.2 of the IBM AIX Operating System. Changes are made periodically to the information herein; these changes will be reported in technical newsletters or in new editions of this publication.

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM licensed program in this publication is not intended to state or imply that only IBM's licensed program may be used. Any functionally equivalent program may be used instead.

**International Business Machines Corporation provides this manual "as is," without warranty of any kind, either express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this manual at any time.**

Products are not stocked at the address given below. Requests for copies of this product and for technical information about the system should be made to your IBM authorized RT dealer, your IBM marketing representative, or your IBM authorized remarketer.

A reader's comment form is provided at the back of this publication. If the form has been removed, address comments to IBM Corporation, Department 997, 11400 Burnet Road, Austin, Texas 78758-3493. IBM may use or distribute whatever information you supply in any way it believes appropriate without incurring any obligation to you.

©Copyright International Business Machines Corporation 1985, 1988

©Copyright INTERACTIVE Systems Corporation 1984

©Copyright AT&T Technologies 1984



---

## Trademarks

The following trademarks apply to this book:

- AIX is a trademark of International Business Machines Corporation.
- DEC and VT100 are trademarks of Digital Equipment Corporation.
- Ethernet is a trademark of XEROX CORPORATION.
- IBM is a registered trademark of International Business Machines Corporation.
- PC-NFS and NFS are trademarks of Sun Microsystems, Inc.
- Proprinter is a trademark of International Business Machines Corporation.
- Quietwriter is a registered trademark of International Business Machines Corporation.
- RT is a registered trademark of International Business Machines Corporation.
- Sun Microsystems is a registered trademark of Sun Microsystems, Inc.
- Tektronics is a trademark of Tektronix, Inc.
- UNIX was developed and licensed by AT&T. It is a registered trademark of AT&T in the United States of America and other countries.
- XEROX is a trademark of XEROX CORPORATION.



---

## About This Book

This book contains reference information on Advanced Interactive Executive (AIX) Operating System commands. It describes the commands you can use and summarizes who can run them, how to run them, what they do, how they read input, how they write output, and how to modify their actions.

### Who Should Use This Book

To use this book, you should be familiar with AIX or UNIX System V commands. If you are not already familiar with AIX or UNIX System V, see *Using the AIX Operating System*. If you are familiar with the commands but need to review how to use the shell and write shell procedures, see “sh” on page 913.

### How To Use This Book

Most of the AIX commands described in this book are in alphabetical order by command name. Some related commands are combined in one description listed with a main or key command. The related commands have an entry with the main command in the table of contents and are listed individually in alphabetical order in the index. If you are having difficulty locating a particular command, check the “Contents” or “Index” sections of this publication.

### Command Information

The “Commands” section begins on page 11. A discussion of a command may include the following information:

<b>Purpose</b>	A single-sentence description of the major function of each command
<b>Syntax</b>	A <i><b>syntax diagram</b></i> that shows command line options (For a discussion of how to use this syntax diagram, see “Syntax Diagrams” on page 5.)
<b>Description</b>	A discussion of the command that provides more details about its function and use



---

<b>Flags</b>	A list of command line flags and associated parameters with an explanation of how the flags modify the action of the command
<b>Subcommands</b>	A list of subcommands (for interactive commands) that explains their use
<b>Examples</b>	Specific examples of how you can use the command
<b>Files</b>	A list of files used by the command
<b>Related Information</b>	A list of related commands in this book and related discussions in other books.

For details on other conventions used in this book, see “How to Use the Commands” on page 3.

## A Task Index

“Task Index” on page TASK-1 can help you locate the commands you need to perform specific tasks. It contains lists of commands grouped by task. Next to each command is a description of what it does. To find a command that performs a specific task, locate the task in the table of contents at the beginning of the task index, go to the indicated page and review the list of commands associated with that task, then select the desired command. For more information about the command, refer to the discussion of the command in the “Commands” section.

## Other Reference Aids

A cross-reference listing of commands and program packages appears in Appendix B, “Program Cross-Reference” on page 1269. Appendix C, “Syntax Diagram Guide” on page 1277 contains a detailed description of how to read syntax diagrams. The standard system devices are described in Appendix A, “AIX Device Table” on page 1267. A “Glossary” of terms appears after the Appendixes, followed by an “Index.”

In addition, a Reader’s Comment Form and Book Evaluation Form are provided at the back of the second volume of this publication. Use the Reader’s Comment Form at any time to give IBM information that may improve the book. After you have become familiar with the book, use the Book Evaluation Form to give IBM specific feedback about the book.

## Japanese Language Support

Appendix D, “Japanese Language Support” on page 1287 contains a list of commands that have not been modified to support Japanese characters.



---

## Special Key Sequences

You can use the AIX Operating System from any of several different display stations, each of which has a different keyboard. In some cases, you must press different keys to perform the same function from different keyboards. Throughout this publication both the function name (for example, INTERRUPT) and the necessary key sequence on the IBM RT system are identified. If you are not using an IBM RT Keyboard, look at your keyboard reference chart to find out which keys on your keyboard produce the same function.

## Prerequisite Information

- *IBM RT Managing the AIX Operating System* provides instructions for performing such system management tasks as adding and deleting user IDs, creating and mounting file systems, repairing file system damage, and managing data communications facilities.
- *IBM RT Using the AIX Operating System* describes using the AIX Operating System commands, working with file systems, developing shell procedures, and using data communications facilities.

## Related Information

- *IBM RT AIX Operating System Programming Tools and Interfaces* describes the programming environment of the AIX Operating System and includes information about using the operating system tools to develop, compile, and debug programs. In addition, this book describes the operating system services and how to take advantage of them in a program. This book also includes a diskette that includes programming examples, written in C language, to illustrate using system calls and subroutines in short, working programs. (Available optionally)
- *IBM RT AIX Operating System Technical Reference* is a four-volume set.

*System Calls and Subroutines*, describes the system calls and subroutines that a C programmer uses to write programs for the AIX Operating System.

*Files and Extensions*, contains information about the extensions to the kernel and base operating system, including file formats, special files, and GSL subroutines.

*VRM Programming Support*, describes the VRM programming environment, including the internal VRM routines, VRM floating-point support, use of the VRM debugger, and the supervisor call instructions that form the Virtual Machine Interface.

*VRM Device Support*, describes device IPL and configuration, minidisk management, the virtual terminal and block I/O subsystems, as well as the interfaces to VRM device driver and data link control components. This volume also describes the programming

---

conventions for developing your own VRM code and installing it on the system. (Available optionally)

- *IBM RT Using DOS Services* provides step-by-step information for using AIX Operating System **shell**. (Available optionally; packaged with *IBM RT DOS Services Reference*)
- *IBM RT DOS Services Reference* provides reference information about the AIX Operating System **shell**. This book also includes information on sharing DOS files with Personal Computer AT Coprocessor Services, and on the differences between PC DOS and **shell**. (Available optionally; packaged with *IBM RT Using DOS Services*)
- *IBM RT C Language Guide and Reference* provides guide information for writing, compiling, and running C language programs and includes reference information about C language data structures, operators, expressions, and statements. (Available optionally)
- *IBM RT Messages Reference* lists messages displayed by the IBM RT and explains how to respond to the messages.
- *IBM RT AIX Operating System Text Formatting Guide* describes the functions and capabilities of NROFF and TROFF to perform text processing tasks. (Available optionally)
- *IBM RT Bibliography and Master Index* provides brief descriptive overviews of the books and tutorial program that support the IBM RT hardware and the AIX Operating System. In addition, this book contains an index to the RT and AIX Operating System library.

See *IBM RT Bibliography and Master Index* for order numbers of IBM RT publications and diskettes.

## Ordering Additional Copies of This Book

To order additional copies of this publication (without program diskettes), use either of the following sources:

- To order from your IBM representative, use Order Number SBOF-1814.
- To order from your IBM dealer, use Part Number 27F4354.

A binder is included with the order. For information on ordering the binder and manual separately, contact your IBM representative or your IBM dealer.



---

# Contents

<b>VOLUME 1</b> .....	<b>1</b>
<b>How to Use the Commands</b> .....	<b>3</b>
Command Input and Output .....	4
File Name Substitution .....	4
Syntax Diagrams .....	5
Command, Flag, and Parameter Notation .....	8
<b>Commands</b> .....	<b>11</b>
<b>acct/*</b> .....	<b>13</b>
<b>chargefee</b> .....	<b>14</b>
<b>ckpacct</b> .....	<b>14</b>
<b>dodisk</b> .....	<b>14</b>
<b>lastlogin</b> .....	<b>15</b>
<b>monacct</b> .....	<b>15</b>
<b>nulladm</b> .....	<b>15</b>
<b>prctmp</b> .....	<b>15</b>
<b>prdaily</b> .....	<b>15</b>
<b>prtacct</b> .....	<b>16</b>
<b>remove</b> .....	<b>16</b>
<b>shutacct</b> .....	<b>16</b>
<b>startup</b> .....	<b>16</b>
<b>turnacct</b> .....	<b>16</b>
<b>acctcms</b> .....	<b>18</b>
<b>acctcom</b> .....	<b>20</b>
<b>acctcon</b> .....	<b>24</b>
<b>acctcon1</b> .....	<b>24</b>
<b>acctcon2</b> .....	<b>25</b>
<b>acctdisk, acctdusg</b> .....	<b>26</b>
<b>acctmerg</b> .....	<b>28</b>
<b>acctprec</b> .....	<b>30</b>
<b>acctprec1</b> .....	<b>30</b>
<b>acctprec2</b> .....	<b>31</b>
<b>accton</b> .....	<b>31</b>
<b>actman</b> .....	<b>32</b>
<b>adb</b> .....	<b>33</b>
<b>admin</b> .....	<b>41</b>
<b>ali</b> .....	<b>48</b>
<b>anno</b> .....	<b>50</b>



ap	53
ar	55
arithmetic	59
as	61
at, batch	63
audit	67
auditapp	69
auditbin	71
auditpr	73
auditselect	76
auditstream	78
auditwrite	80
awk	81
back	87
backup	88
banner	94
basename, dirname	95
bc	97
bdiff	102
bellmail	104
bffcreate	108
bfs	110
biod	114
biodd_cfg	115
bj	117
bs	118
burst	129
cal	132
calendar	134
cat	137
cb	139
cc	140
cd	150
cdc	152
cflow	154
chgrp	156
chkcomp	158
chmod	160
chngstate	164
installc	166
updatec	167
chown	169
chparm	171
chroot	172
chtcb	174
clri	175

cmp	177
col	179
comb	181
comm	183
comp	185
confer	189
config	194
conflict	196
connect	198
cp	202
cpio	205
cpp	210
craps	214
crash	215
cron	220
crontab	222
csch	225
csplit	252
ct	254
ctab	257
ctags	261
cu	263
cut	269
cvid	272
Cvt	274
cw, checkcw	275
cxref	279
date	281
dbx	284
dc	295
dcopy	299
dd	301
defkey	306
del	308
delta	310
deroff	313
devices	315
devnm	316
df	318
diff	320
diff3	323
diffmk	326
dircmp	328
diskusg	330
display	332
dist	336

domainname	340
dos	341
dosdel	345
dosdir	346
dosread	348
doswrite	350
dp	352
dsipc	354
dsldxprof	355
dspcat	357
dspmsg	359
dsstate	361
dsxlate	363
du	364
dump	366
dumpfmt	368
echo	369
ed	371
edconfig	385
edit	387
env	393
eqn, neqn, checkeq	395
errdead	397
errdemon	398
errpt, errpd	400
errstop	404
errupdate	405
ex	407
expr	412
factor	416
ff	417
file	420
find	422
fish	427
fmt	428
folder	429
folders	433
format	436
fortune	437
forw	438
fptype	444
fsck, dfscck	445
fsdb	450
fuser	455
fwtmp	457
acctwtmp	458



wtmpfix .....	458
gdev .....	460
hpd .....	460
erase .....	461
hardcopy .....	461
tekset .....	461
td .....	461
ged .....	463
gencat .....	470
gend .....	475
get .....	477
getopt .....	485
gettext .....	488
getty .....	490
graph .....	494
graphics .....	497
greek .....	499
grep .....	501
groups .....	506
gutil .....	508
bel .....	509
cvrtopt .....	509
gd .....	510
gtop .....	510
pd .....	510
ptog .....	510
quit .....	510
remcom .....	510
whatis .....	511
yoo .....	511
hangman .....	512
help .....	513
hp .....	514
hyphen .....	516
id .....	517
inc .....	518
init .....	521
install .....	524
install-mh .....	527
installp .....	529
inusave .....	531
inurecv .....	532
inurest .....	533
ckprereq .....	533
mvmd .....	534
ipcrm .....	537

ipcs	539
ipctable	544
istat	545
join	547
keyboard	551
kill	552
killall	555
ld	557
lex	562
li	567
line	574
link, unlink	575
lint	577
ln	581
locator	583
login	584
loginx	587
logname	589
logout	590
lorder	591
lp	593
ls	595

## VOLUME 2 601

m4	603
mail, Mail	608
mailstats	623
make	625
makedbm	632
makekey	634
man	635
mark	637
mdrc	640
mesg	642
mhl	643
mhmail	646
mhpath	648
minidisks	650
mkcatdefs	651
mkdir	657
mkfs	658
mknod	661
mm, checkmm	663
mmt, checkmm	666
moo	668

mount	669
mountd	674
msgchk	675
msh	677
mv	679
mvdir	682
ncheck	683
ndtable	685
newform	686
newgrp	689
news	691
next	694
nfsd	696
nfsstat	697
nice	699
nl	701
nm	705
nohup	707
nroff, troff	709
number	721
od	723
on	726
open	728
pack	730
pcat	731
unpack	731
packf	733
passwd	735
paste	736
pcnfs	739
pdisable, phold	741
pg	744
pick	748
piobe	753
portmap	757
post	758
pr	761
prev	765
print	767
prof	773
profiler	775
prfld	776
prfstat	776
prfdc, prfsnap	776
prfpr	776
prompter	778



proto	780
prs	781
ps	786
pstart, penable, pshare, pdelay	791
ptx	794
puttext	796
pwck	798
pwd	800
phtable	801
qdaemon	802
quiz	803
rc	806
rcvdist	808
rcvpack	810
rcvstore	812
rcvtty	815
refile	817
regcmp	820
repl	821
restore	826
rex	832
rm	833
rmail	836
rm	837
rmdir	838
rmf	839
rmm	841
rpcgen	843
rpcinfo	845
rstatd	847
runacct	848
runcat	852
rup	854
rusers	856
rusersd	858
rwall	859
rwalld	861
sact	862
sadc	863
sa1	864
sa2	864
sag	865
sar	867
scan	871
sccsdiff	874
sdb	875

<b>sdiff</b>	883
<b>secure</b>	885
<b>sed</b>	887
<b>send</b>	893
<b>sendmail</b>	897
<b>setdma</b>	910
<b>setmnt</b>	911
<b>sh</b>	913
<b>shell</b>	938
<b>shlib</b>	939
<b>show</b>	942
<b>showmount</b>	945
<b>shutdown</b>	946
<b>size</b>	949
<b>skulker</b>	951
<b>sleep</b>	952
<b>slocal</b>	954
<b>sno</b>	956
<b>sort</b>	958
<b>sortm</b>	965
<b>sound</b>	967
<b>spell</b>	969
<b>spline</b>	972
<b>split</b>	974
<b>splp</b>	975
<b>spost</b>	978
<b>spray</b>	981
<b>sprayd</b>	983
<b>stat</b>	984
<b>strip</b>	1017
<b>stty</b>	1018
<b>su</b>	1026
<b>sum</b>	1029
<b>sync</b>	1030
<b>sysck</b>	1031
<b>syslogd</b>	1037
<b>tab, untab</b>	1040
<b>tabs</b>	1041
<b>tail</b>	1044
<b>tapechk</b>	1047
<b>tar</b>	1048
<b>tbl</b>	1053
<b>tc</b>	1056
<b>tctl</b>	1058
<b>tee</b>	1060
<b>termdef</b>	1062

---

test	1064
tic	1067
time	1068
timex	1069
tlog	1071
tlogger	1072
toc	1074
dtoc	1074
ttoc	1075
vtoc	1075
touch	1077
tplot	1079
tput	1081
tr	1083
trace	1086
trcrpt	1091
trcstop	1093
trcupdate	1094
trdiag	1097
true	1099
tsh	1100
tsort	1102
ttt	1104
tty	1105
turnon	1107
tvi	1108
ugtable	1109
umask	1110
umount, unmount	1112
uname	1114
unget	1116
uniq	1118
units	1119
updatep	1122
inudocm	1125
inuupdt	1127
users, adduser	1129
uucpadm	1133
uucheck	1137
uucico	1139
uucleanup	1141
uucp	1144
Path Names Used with uucp	1145
Source and Destination File Names	1145
Permissions	1146
uulog	1149



uuname	1151
uupick	1153
File-Handling Options	1154
uusched	1156
uustat	1158
uuto	1162
uutry, Uutry, uukick	1164
uux	1166
uuxqt	1172
val	1175
varyoff	1177
varyon	1180
vc	1182
verify	1186
vi, vedit, view	1187
vmh	1203
vrml2rtfont	1205
vrmlconfig	1206
wall	1208
watch	1209
wc	1211
what	1213
whatnow	1215
who	1219
whom	1222
write	1225
writesrv	1230
wump	1231
xargs	1232
xdbx	1236
yacc	1237
ypbind	1239
ypcat	1241
ypinit	1243
ypmatch	1245
yppasswd	1247
yppasswdd	1249
yppoll	1251
yppush	1252
ypset	1254
ypserv	1256
ypwhich	1258
ypxfr	1260
300	1262
4014	1264
450	1265

---

Appendix A. AIX Device Table .....	1267
Appendix B. Program Cross-Reference .....	1269
Appendix C. Syntax Diagram Guide .....	1277
Appendix D. Japanese Language Support .....	1287
Glossary .....	1291
Task Index .....	TASK-1
Index .....	INDEX-1

---

## Figures

1. SCCS Header Flags .....	44
2. SID Determination .....	481
3. Mailbox Commands .....	611
4. Mail Editor Commands .....	617
5. Binary Options .....	619
6. Valued Options .....	620
7. Delta Table Keywords .....	782
8. Header Flag Keywords .....	783
9. Other Keywords .....	784
10. Configuration Options .....	905
11. <b>tbl</b> Column and Item Specifiers .....	1054
12. Configuration File Parameters .....	1129
13. AIX Standard Devices (Special Files) .....	1268



